CAAP Mitigation Actions- Draft Released 5/31/19

This chapter presents the City of Long Beach GHG emission reduction actions for the CAAP. Each action includes a description, implementation steps and responsibilities, potential performance metrics and co-benefits, as well as any anticipated equity impacts. As detailed in the GHG Inventory chapter, the City has established a target to reduce per-capita emissions from a baseline of approximately 6.6 MT CO_2e in 2015 to 4.46 MT CO_2e (2.1 million MT CO2e) in 2030, and by 2045 the City has established a goal of achieving net carbon neutrality.

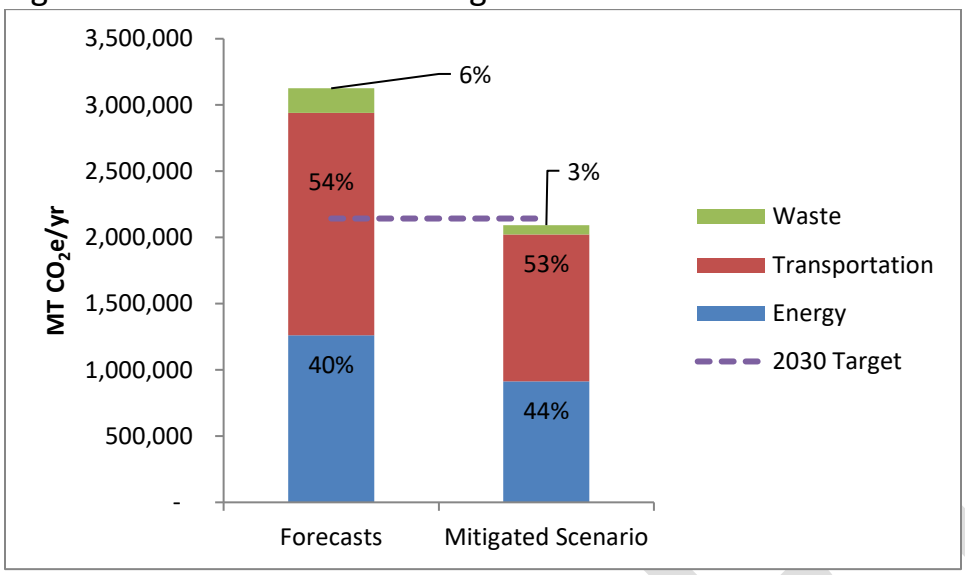
Meeting and exceeding our 2030 emissions reduction target

To meet and exceed the 2030 target, 19 priority actions have been identified in the following reduction sectors:

- Transportation
- Buildings + Energy
- Waste

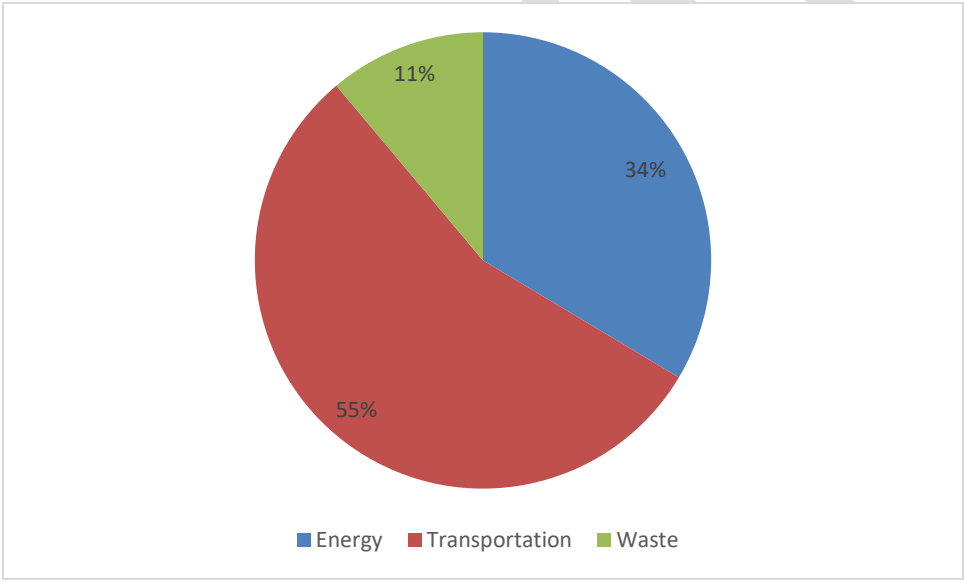
Collectively, successful implementation of these priority actions, combined with reductions from state and federal initiatives, is preliminarily estimated to result in the City meeting and slightly exceeding the 2030 target (Figure 8.1). Transportation, Buildings + Energy, and Waste are estimated to result respectively in 55%, 34%, and 11% of the 2030 reductions compared to the forecast (Figure 8.2) As the City continues to refine and finalize these priority actions with input from the public and stakeholders, these collective emission reduction estimates will also be refined, and individual estimates for each action measure will be provided as applicable.

Figure 8.1: 2030 Reduction Target



Source: AECOM

Figure 8.2: % of 2030 Reductions by Sector



*Compared to forecasted emissions

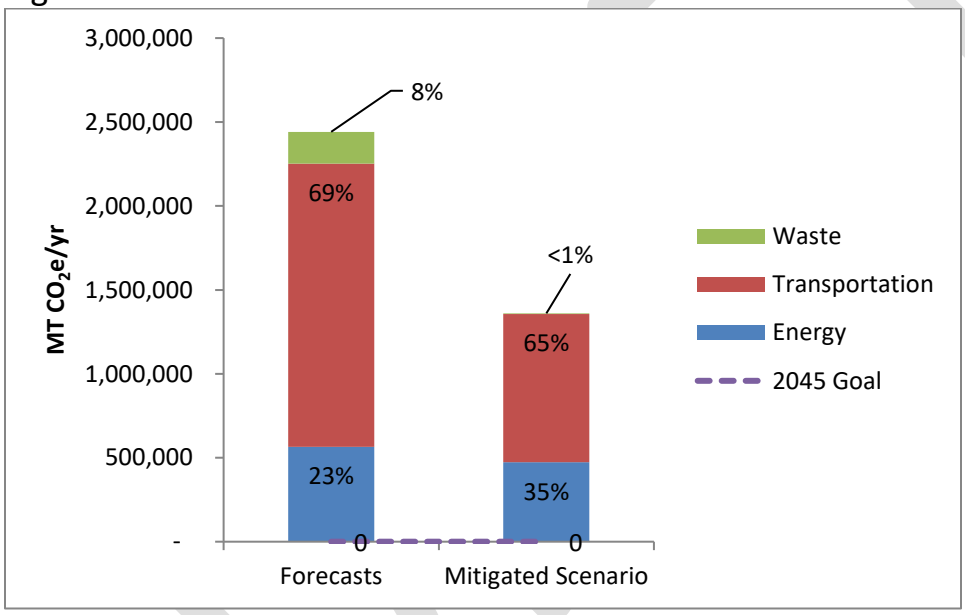
Source: AECOM

Moving beyond 2030 to carbon neutrality in 2045

Full implementation of all 19 priority actions will not be enough to achieve carbon neutrality in 2045. If emission reductions from all of these actions were

maximized by 2045, total emissions would still be approximately 1.4 million MT CO_2e based on preliminary estimates (Figure 8.3). As a result, additional actions will be needed. In order to contribute to this goal, some may need to be implemented before 2030 while others may come after. The CAAP includes 20 additional mitigation actions that have not been prioritized for reaching the 2030 goal but could play a role in achieving additional reductions by 2030 and/or helping the City achieve the net carbon neutrality goal. These have been listed along with descriptions at the end of this chapter under "Additional CAAP Mitigation Actions".

Figure 8.3: 2045 Reduction Goal



Source: AECOM

Process for selecting and prioritizing actions

Priority actions were identified and included based on the following factors:

- Importance to meet necessary GHG reductions
- Technical feasibility and City implementation capacity
- Public and stakeholder feedback
- Equity analysis

Public and stakeholder feedback played a prominent role in identifying both the priority and the additional priority actions. Broadly, common feedback themes included expanding transportation choices, increasing access to renewable electricity, reducing waste, reducing costs and enhancing affordability, and investments that would improve public health and overall quality of life.

Priority Mitigation Actions

#	Transportation	GHG Reductions (MT CO_2e)
T-1	Increase frequency, connectivity, and safety of transit options	TBD
T-2	Increase employment and residential development along primary transit corridors	TBD
T-3	Implement the Port of Long Beach Clean Air Action Plan	TBD
T-4	Increase bikeway infrastructure	TBD
T-5	Expand/improve pedestrian infrastructure citywide	TBD
T-6	Develop an Electric Vehicle Infrastructure Master Plan	TBD
T-7	Update the Transportation Demand Management Ordinance	TBD
T-8	Increase density and mixing of land uses	TBD
T-9	Integrate SB 743 planning with CAAP process	TBD
T-10	Identify and implement short-term measures to reduce emissions related to oil and gas extraction	TBD
#	**Energy**	
BE-1	Provide access to renewably generated electricity	TBD
BE-2	Develop a home energy assessment program	TBD
BE-3	Provide access to energy efficiency financing, rebates, and incentives for building owners	TBD
BE-4	Promote community solar and microgrids	TBD
BE-5	Perform municipal energy audits	TBD
#	**Waste**	
W-1	Ensure compliance with state law recycling program requirements for multi-family residential and commercial property	TBD

W-2	Develop a residential organic waste collection program	TBD
W-3	Ensure compliance with state law organic waste diversion requirements for multi-family residential and commercial	TBD
W-4	Identify organic waste management options	TBD

T-1: Increase frequency, connectivity, and safety of transit options

Evaluate transit service and routes, identify opportunities to increase frequency, connectivity, and safety to increase ridership.

Implementation Lead: Long Beach Transit

Partners: Metro, Regional Transit Providers, Department of Development Services, Public Works

Timeline: Medium (3-5 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % increase in ridership on Long Beach Transit, Metro Blue Line, and regional transit routes
- % increase in operating hours
- # minute reduction in headways
- # increase of rapid bus and regional connector routes
- % increase in safety perception from transit riders
- % decrease in crime on transit

Co-benefits:

- Decreased dependency on single-passenger auto trips
- Increased accessibility to key major destinations and job centers
- Improved regional air quality
- Increased perception of safety

Description:

When Long Beach individuals were asked about their primary mode of transportation as part of the online CAAP survey, 75% of respondents stated that driving alone remained their primary mode and cited three issues as barriers to increased transit usage: frequency of service, connectivity of routes, and safety.

Despite relatively low transit ridership compared to car trips, Long Beach has solid public transit infrastructure and service. The LA Metro Blue Line has nine stations in Long Beach, and Long Beach Transit boasts over 30 routes including specialized options like the free downtown Passport bus, water taxis, the Museum Express, and the Galaxy/Chargers Express. Many areas of Long Beach also have service from Torrance Transit, Bellflower Bus, LADOT Commuter Express, OCTA, and LA Metro bus routes.

One way for Long Beach to improve transit options in the short-term is to partner with other entities to create rapid bus and regional connector routes with increased frequency and fewer stops. Examples include: the temporary Metro 860 express shuttle from Downtown Long Beach to Downtown Los

Angeles, the Long Beach Transit/UCLA Westwood Commuter Shuttle, the LAX Flyway, and Flixbus/ Greyhound buses to Las Vegas, San Francisco, and San Diego. For the long-term, the City will work closely with Long Beach Transit to support core components of its STAR (Systemwide Transit Analysis and Reassessment) initiative, like increasing operating hours by 50% in 10 years, and reducing headways to 15 minutes on many key routes/corridors. The City will also collaborate on STAR's Future Emerging Mobility Zones, where on-demand service using smaller vehicles serves the needs of customers, and can prioritize the disabled and those who currently use the "Dial-A-Lift" Access Services. Mobility Zones are planned to be near the Del Amo and Artesia Blue Line Stations, around Bellflower and Lakewood, and in the vicinity of Long Beach Towne Center and CSULB.

Identification of customer safety enhancements will be done alongside increasing frequency and connectivity of transit options. This will be important, especially since many Long Beach survey respondents identified not feeling safe on transit as a barrier to their ridership. Safety improvements could include installing lighting at stops, bus video monitors, and signage that provides riders with emergency contact and "what to do" information. Additionally, the presence of trained social workers on public transit lines is a one way to address the homeless population and reduce minor crime violations.

Implementation Steps:

- Continue to support Long Beach Transit STAR Initiative goals.
- Work with transit partners to assess current bus routes and create rapid bus and regional connector routes.
- Make Future Emerging Mobility Zones a real and inclusive project.
- Make customer safety changes alongside transit improvements, including prioritizing the deployment of trained social workers

Potential Cost Level: TBD

Equity Impacts:

- Faster, more affordable, and more reliable service for low-income transit riders who have to commute long distances to work or school.
- Overall improvements to better connect underserved areas and populations
- Persons with disabilities benefiting from Future Emerging Mobility Zones and improved on-demand service.

T-2: Increase employment and residential development along primary transit corridors

Identify land use and/or zoning changes to expand transit-oriented development (TOD) opportunities along the City's primary transit corridors. Pursue strategies to increase affordable housing in these areas.

Implementation Lead: Development Services

Partners: Long Beach Department of Economic Development, Gateway Council of Governments, Southern California Association of Governments, neighborhood groups

Timeline: Long (6+ years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- # of additional developable square feet in TOD zones
- # of city permits issued for TOD development
- # of housing units permitted in transit areas
- # of affordable housing units permitted in transit areas
- Increase in population and employment density in transit station areas and along transit corridors

Co-benefits:

- Improved air quality
- Increased transit ridership
- Reduced vehicle miles traveled
- Increased economic development and increased tax base
- Increase in affordable housing
- Increase in walkability

Description:

The transportation sector is the largest source of emissions statewide and in the city. Achieving sufficient transportation emissions reductions to meet long-term goals cannot be achieved through clean vehicles alone. It will also require reducing vehicle miles travelled (VMT) by providing alternatives to driving and reducing the distance between housing, jobs, and other key destinations. Transit-oriented development (TOD) neighborhoods are critical for reducing VMT. TOD neighborhoods vary substantially but typically include a mixture of housing, office, retail, and other amenities integrated into a walkable neighborhood served by high quality transit, typically rail or high-frequency bus service.

Through SB 375, California requires the creation of regional plans to reduce per capita VMT and prioritize transit and transit-oriented development. Cities play a key role in these efforts. Through the development review process, the City of Long Beach will evaluate new development projects based on consistency with the General Plan's Land Use Element and Transportation planning goals and encourage high-density, mixed-use, transit-oriented, and infill development. The City of Long Beach will also work in concert with Gateway Cities Council of Government and Southern California Association of Governments to do its part in fulfilling key regional planning goals, as expressed in the Regional Transportation Plan / Sustainable Communities Strategy. The City will also develop ordinances to reduce or eliminate parking requirements, increase density allowances, and remove height restrictions (where feasible) along transit corridors. And the City will further strive to develop businesses along transit corridors, enabling use of public transit from TODs to job centers.

Affordable housing, when placed near transit, further provides economic and social benefits. A growing body of literature demonstrates that low- and middle-income households living near transit ride transit much more frequently and own fewer cars than high-income households. TOD policies also put the City on more competitive footing for California's Affordable Housing Sustainable Communities (AHSC) grant funding, as well as cost-saving housing policies like AB 987 and SB 743 which can speed development and reduce the cost of housing to consumers.

Implementation Steps:

- Integrate land use and transportation planning goals in City's General Plan Update
- Develop General Plan Update that demonstrates consistency with the SCAG Regional Transportation Plan/Sustainable Community Strategy to create complete neighborhoods and reinforce regional transit planning objectives.
- Disincentivize driving through parking strategies such as pricing and reduction or elimination of parking minimums, increased density/intensity allowance near transit, and remove height restrictions (as feasible) along transit corridors.
- Establish additional incentives for affordable housing and expand renter protections to prevent displacement of low-income residents near transit.

Potential Cost Level: TBD

Equity Impacts:

- Affordable, transit-friendly housing is in short supply and benefits low-income households and individuals. TOD housing reduces combined housing and transportation costs for residents, especially for low-income populations that use transit at higher rates than the general population. Decoupling parking costs can further reduce housing costs.
- By reducing the number of cars on the road transit use improves air quality, which especially benefits low-income communities.
- Walkable communities encourage a healthier lifestyle and improve the cardiovascular health of residents.
- TODs improve access to jobs and services.

T-3: Implement the Port of Long Beach Clean Air Action Plan

Continue to implement the Clean Air Action Plan to reduce GHG emissions and pollution from Port ships, trucks, trains, harbor craft, and cargo equipment.

Implementation Lead: Port of Long Beach

Partners: Sustainability Office, shippers and terminal operators

Timeline: Ongoing

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- # of zero emissions heavy-duty drayage trucks
- % of ships utilizing shore power
- % of zero emission cargo equipment
- % of ships participating in Vessel Speed Reduction Program
- Participation by ships that qualify for Green Ship Incentives

Co-benefits:

- Improved local and regional air quality
- Improved public health

Description:

The Port of Long Beach is a major hub for global, national, and regional trade. Port emission sources include ocean-going ships, harbor craft, cargo equipment, trains, and trucks. While these sources have historically relied on diesel fuel, there is an increasing number of options that are available and being deployed to reduce both greenhouse gas and air quality emissions. These include plugging ships into shore power while docked, reduced ship speeds, clean and alternative-fuel trucks, more efficient locomotives, hybrid and electric cargo equipment and harbor craft, energy efficiency and renewable power generation, and investment in infrastructure to increase efficient movement of cargo. The Port's Clean Trucks Program in particular has been a major emphasis of these efforts, given the impacts of truck emissions on community health.

The Port of Long Beach and Los Angeles joint San Pedro Bay Ports Clean Air Action Plan 2017 Update incorporates these strategies and targets reducing greenhouse gases from port-related sources to 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050. These targets align with California's targets under SB 32 and Executive Order S-3-05. It also reflects a variety of state regulations that mandate emission reductions from the various emissions sources. From 2005 to 2017 the Ports combined efforts resulted in an 18% reduction in greenhouse gas emissions.

The Port will continue to implement the Clean Air Action Plan in the coming years. It contains a comprehensive set of strategies to reduce emissions to meet the 2030 target reductions. This includes achieving up to 100% compliance with state requirements for ships to utilize shore power or alternative capture technologies while docked, continued implementation of the Clean Trucks Program, and additional actions. The Port will continue to work in partnership with its tenants, regional, state, and federal agencies, and other stakeholders to implement the plan, invest in developing and deploying clean technologies, and advocate for needed policies and funding.

Implementation Steps:

- Continue to design and implement programs to meet the Clean Air Action Plan implementation goals.
- Continue to expand the Green Ports Collaborative.
- Continue to provide quarterly and annual progress reports.
- Continue investments in the Technology Advancement program to encourage green technology development and piloting.

Potential Cost Level: TBD

Equity Impacts:

- Substantial local air quality improvements will benefit those environmentally burdened, disadvantaged communities in close proximity to the Port, near-Port facilities, and along the I-710 corridor.

T-4: Increase bikeway infrastructure

Redesign transportation infrastructure to expand the City's bikeway system throughout the City, particularly in disadvantaged communities, in order to encourage safe and convenient use of bicycles, e-scooters, and other sustainable travel modes.

Implementation Lead: Public Works

Partners: Long Beach Bike Share, e-scooter companies, nonprofit transportation organizations

Timeline: Medium (3-5 Years)

GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % of city population that can walk to bikeshare stations within 5 minutes
- % change in travel mode for short trips (e.g., less than two miles) made by walking, bicycling, e-scooter, or mobility device
- % change in usage of Long Beach Bike Share (# of rides and miles)
- % change in e-scooter ridership (# of rides and miles)
- # of new miles of bikeways delivered by class

Co-benefits:

- Improved local air quality
- Public health benefits through active lifestyles
- Reduced household transportation expenses
- Increased safety from eyes-on-the-street

Description

Expansion of bikeway infrastructure is important to fostering a sustainable environment through healthy, non-polluting, and low-cost forms of transportation. Investments in bikeway infrastructure can also address the first/last mile issue transit riders have in getting to and from their final destinations. Projects that expand bikeway infrastructure can include bike lanes, charging infrastructures for e-scooters, expanding bicycle and e-scooter networks to disadvantaged areas, and education and engagement to encourage safe bicycling and e-scooter behavior.

The City of Long Beach has taken many steps to improve its bicycle and e-scooter infrastructure. In 2017, the City adopted its Bicycle Master Plan (BMP) as an appendix to the General Plan Mobility Element. The BMP outlines its efforts to expand its 141 miles of existing bikeways, establish and expand its bike share program, and increase bicycle parking across the city. The success of these efforts have been noticed as

Long Beach was ranked by Bicycling magazine as the 27th most bike friendly city in the United States. With the rise of e-scooters since 2018, the City has worked extensively with e-scooter companies to increase mobility for short-distance travel. One way the City will increase equity and ensure ridership for low-income populations is collaborating with bike share and e-scooter partners to deploy a certain percentage of mobility infrastructure in disadvantaged communities (based on CalEnviroScreen 3.0 scores). The City will also evaluate ways to make bikes and e-scooters affordable and accessible for the communities they are located in such as subsidies and specialized programs for low-income individuals that qualify.

The City has received previous support from multiple sources to fund bicycle infrastructure projects and it will continue to seek funds from federal agencies, state departments, LA Metro, Long Beach Measure A, and private foundations.

Implementation Steps:

- Continue to implement priority projects identified in the City's Bicycle Master Plan and other planning documents/studies.
- Monitor travel mode shifts through surveys (e.g., City's annual bicycle, pedestrian, and e-scooter count) and/or SCAG-sponsored travel studies.
- Apply for additional funding for bicycle, e-scooter, and mobility improvement projects.
- Work with private partners to increase the number of bicycle share and e-scooters deployed in disadvantaged areas and evaluate affordability for low-income individuals.
- Use community engagement to encourage safe bicycling and e-scooter behavior.

Potential Cost Level: TBD

Equity Impacts:

- Increasing and enhancing mobility options can ensure low-income and disadvantaged communities have access to reliable forms of transportation, especially for first/last mile barriers to final destinations.
- An effective active mobility network can improve public health, especially in neighborhoods where a lack of bikeway infrastructure and supporting amenities has acted as a barrier to active transportation.
- A better mobility network can relieve car traffic congestion and potentially improve local air quality, especially in neighborhoods that are already overburdened with traffic and air pollution.

T-5: Expand/improve pedestrian infrastructure citywide

Ensure safe and convenient pedestrian infrastructure is provided citywide, including uninterrupted sidewalk connections, adequate lighting and visibility, shading, and safe intersections.

Implementation Lead: Public Works

Partners: Department of Health and Human Services – Healthy Active Long Beach, Department of Development Services, LA Metro, nonprofit transportation organizations, and neighborhood groups

Timeline: Medium (3-5 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % change in travel mode for short trips (e.g., less than 2 miles) made by walking or personal mobility device
- % change in vehicle-pedestrian accidents
- # of improved crosswalks (e.g., signalized, non-signalized, scrambles)
- # of installed traffic calming measures (e.g., medians, roundabouts, bulb-outs, curb extensions)

Co-benefits:

- Public health benefits through active lifestyles
- Decrease in vehicle-pedestrian collisions
- Improved local air quality
- Increased walkability spurring economic development
- An embrace of neighborhood character

Description

Expanding and improving pedestrian infrastructure in neighborhoods can increase walking and reduce driving. Walkable neighborhoods also generally are safer for users of other modes such as bicycles, scooters, and wheelchairs. Pedestrian barriers can include sidewalks that are uneven, too narrow, lack ADA ramps and other amenities such as safety infrastructure near vehicle travel. Pedestrian infrastructure improvements can include installing sidewalk amenities like street trees and other landscaping, lights, street furniture (e.g., benches, trash and recycling bins), and transit shelters. Pedestrian safety improvements can include streetlight crossings or designated bike lanes (to minimize biking and e-scooters on sidewalks). Additionally, traffic-calming features like medians, roundabouts, bulb-outs, and curb extensions can discourage high-speed, cut-through traffic and result in safer routes for pedestrians.

The City has taken many steps to improve pedestrian infrastructure. In 2013, it approved the General Plan Mobility Element; in 2016, it approved the Downtown and TOD Pedestrian Master Plan; and in 2017, it approved the Communities of Excellence in Nutrition, Physical Activity and Obesity Prevention (CX3) Pedestrian Plan. The City also worked with LA Metro to produce the Blue Line First/Last Mile: A Community-Based Process and Plan, which was adopted in 2018. All of these plans have been added as appendices to the Mobility Element. While three of these plans focus on specific areas of Long Beach, the City will take a more comprehensive approach and develop a citywide Pedestrian Master Plan that incorporates street design standards from each plan.

Funding is a common barrier to implementing pedestrian improvement plans. The City will apply for funding from State sources, including Caltrans Active Transportation Grants, and cap-and-trade revenue programs. These applications will prioritize funding to address equity disparities. The City will also integrate the financing, design, and construction of pedestrian facilities within other street projects to install pedestrian improvements alongside vehicle, transit, and bikeway improvements. Community support is also important to implementation. The City will continue to work with nonprofit transportation organizations to empower neighborhoods in identifying and prioritizing areas of pedestrian safety concern. Lastly, the City will ensure that all planning processes such as neighborhood and specific plans, identify opportunities for pedestrian improvements.

Implementation Steps:

- Apply for funding to implement priority projects in adopted mobility plans and integrate pedestrian improvements alongside vehicular improvement projects
- Develop citywide Pedestrian Improvement Plan to identify infrastructure gaps in neighborhoods not analyzed in City's other pedestrian plans
- Continue to work with partners and advocacy groups to empower neighborhoods to identify and prioritize areas needing pedestrian safety improvements
- Continue identifying city and external funding sources for pedestrian improvements

Potential Cost Level: TBD

Equity Impacts:

- An effective active mobility network can improve public health, especially in neighborhoods where a lack of bikeway infrastructure and supporting amenities has acted as a barrier to active transportation
- A better mobility network can also relieve car traffic congestion and potentially improve local air quality, especially in neighborhoods that are already overburdened with traffic and air pollution
- Persons with disabilities, seniors, students, and those without access to a car will be more independent as it will be more with safe and convenient to travel options to and from destinations, such as schools, work, shopping, medical appointments, work, parks, and community centers and shopping

T-6: Develop an Electric Vehicle Infrastructure Master Plan

Develop an electric vehicle (EV) infrastructure plan that aligns with county-wide efforts to guide investment and policy decisions that will result in a distributed network of EV chargers.

Implementation Lead: Public Works, Development Services

Partners: Long Beach Office of Sustainability, Southern California Edison

Timeline: Short (1-2 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- Local EV ownership/lease counts
- Number of building permits issued for private property EV charging stations
- Number of publicly accessible EV charging stations
- Number of publicly accessible EV charging stations installed in disadvantaged communities (CalEnviroScreen)

Co-benefits:

- Air quality improvements
- Equitable access to EV charging infrastructure (including low-income communities)
- Urban heat reduction from decreased vehicle waste heat

Description:

On-road emissions are the largest source of emissions in the community. Expanding EV use is a core transportation sector GHG reduction strategy, coupled with ensuring clean electricity is available to recharge EVs. To date, California has been a leader in EV adoption; in 2018, EV sales constituted 8% of all cars sold in the state. For its part, the City can facilitate development of EV charging infrastructure to further support broad adoption of this technology.

The City will develop an EV Infrastructure Master Plan to better understand capacity needs, locations, and opportunities to further reduce barriers to EV use in the community. The plan will guide investment and policy decisions that result in a distributed network of EV chargers. It will analyze the numerous technology and ownership options for charging stations, consider location and network density needs, and analyze case studies from other jurisdictions that have been successful in removing barriers to broad installation. The plan will also establish the policies for EV charging related to zoning, curbside charging, and workplace charging.

As a first step in plan development, Long Beach Sustainability recently received a SCAG Planning grant to develop an EV study that identifies prime workplaces, mixed-use developments, and publicly accessible

fast charging locations within the city using SCAG's PEV Atlas. The study will also develop strategies to address barriers to EV infrastructure implementation.

The City will also work to provide equitable access to EV technology with charging stations installed at or near affordable housing properties. This could also include the development of EV car shares at affordable housing sites or a broader EV car share pilot program with incentives for low-income participants. The Cities of Los Angeles and Sacramento implemented similar programs with cap-and-trade grant funding. This would allow all members of the community to share in the benefits of improved air quality associated with increased EV use.

Implementation Steps:

- Develop EV Infrastructure Master Plan in coordination with residents and other key stakeholders to guide investment and policy updates related to expansion of communitywide EV charging station network
- Develop curbside and public garage EV charging station pilot program to increase at-home charging opportunities in neighborhoods with constrained properties (i.e., no private garage, driveway)
- Establish process for residents and local businesses to suggest locations for new public charging stations
- Coordinate with countywide EV infrastructure plan

Potential Cost Level: TBD

Equity Impacts:

- Low-income communities benefit from local air quality improvement
- EV charging stations and carsharing in low-income and disadvantaged communities would provide additional mobility options

T-7: Update the Transportation Demand Management 0rdinance

Update and implement a transportation demand management (TDM) ordinance that encourages alternative modes of transportation to single-occupant vehicles, including transit, vanpool/carpool, and bicycles.

Implementation Lead: Public Works, Development Services

Partners: Metro**,** transit providers, large building managers, Business Improvement Districts

Timeline: Medium (3-5 Years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- # of employees participating in the TDM program
- % or # of employers that participate in TDM programs
- # of TDM requirements leveraged through new development permits

Co-benefits:

- Improved efficiency of existing transportation infrastructure
- Reduced traffic congestion and air pollution
- Reduced transportation cost burden for residents and employees
- Improved public health through increased physical activity (biking and walking)

Description:

Transportation demand management (TDM) programs establish requirements/incentives to encourage people to reduce single occupant vehicle trips and increase transit, walking, biking, and carpooling. Strategies typically include but are not limited to supplying or incentivizing transit passes, rideshare programs, and similar programs, and the inclusion of physical amenities in many new and redeveloped residential and commercial projects. TDM ordinances generally apply to larger residential and commercial projects that have the most potential for single occupant vehicle trip reduction.

The City will define requirements for a TDM ordinance update that addresses carpool/vanpool parking, bicycle parking and shower facilities/locker rooms, trip reduction plans, and transit-supportive infrastructure development. The ordinance would apply to new non-residential development that exceeds an established size threshold (e.g., 25,000 gross square feet) and new large multi-family development (e.g., 50+ units). The City will also partner with large employers, institutions, and Community Based Organizations (CBOs) to promote existing resources from Metro, including trip planning resources for transit, biking, and ridesharing; existing incentive programs for employers; and incentives for employees, like the Regional Guaranteed Ride Home Program. The City will track the success of the TDM ordinance and related programmatic efforts and establish a basis for estimating

VMT and/or emissions reductions from the ordinance. This will include working with Metro to track participation in regional TDM programs.

Implementation Steps:

- Engage stakeholders to define TDM ordinance update requirements and compliance thresholds
- Develop guidance resources to facilitate successful implementation; work with program participants and Metro staff to identify implementation challenges and solutions
- Partner with other agencies to promote existing transit planning resources and programs

Potential Cost Level: TBD

Equity Impacts:

- To the extent that the ordinance applies to the employers or residential property managers of lower-income residents, the ordinance could result in reduced transportation costs for these residents. And, since low-income households use alternative modes of transportation at higher rates than the general population, actions that would improve the service quality or operational efficiency of these modes would also provide a positive equity impact.

T-8: Increase density and mixing of land uses

Use the City's land use authority to increase development density and provide a mix of land uses, such that residents and employees in the City can easily access goods, services, and entertainment via transit or active transportation modes.

Implementation Lead: Development Services

Partners: Developers

Timeline: Long (6+ years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % increase in population and employment density within ½ mile of high-frequency transit routes
- # of additional developable square feet in TOD zones
- % change in travel mode for short trips (e.g., less than 2 miles) made by walking, biking, transit, or personal mobility device

Co-benefits:

- Less dependency on auto trips for short trips to goods, services, and entertainment
- Increased pedestrian activity that spurs economic development in commercial mixed-use areas

Description

According to the U.S. Census American Community Survey, 75% of Long Beach residents drive alone, 9% carpool, 6% utilize transit, and 2.5% walk to get to and from work. 75% of respondents to the CAAP survey also indicated that driving is their dominant transportation mode for all trips but also indicated a strong preference for walkable, bikeable neighborhoods. Promoting sustainable neighborhoods encourages residents to access stores, healthy foods, and community services without a car. Inherently, sustainable neighborhoods mitigate GHG emissions by making residents less dependent on fossil-fueled vehicles and lowering overall vehicle miles traveled (VMT). Moreover, state regulations such as SB 375 push regional and local jurisdictions to strategically implement regional allocation of housing needs and regional transportation planning coordinated together in order to further reduce GHG emissions.

To promote sustainable neighborhoods, the City will identify and designate select areas for increased development density leading to mixed-use, transit-oriented, walkable neighborhoods that meet community needs. Neighborhoods with a diverse mix of jobs and housing will improve the overall jobs/housing ratio, effectively reducing VMT and providing households with the opportunity to live and work in the same area. These neighborhoods will be consistent with General Plan land use designations and design standards that permit increased density focused near transit. The City will also work to ensure that these neighborhoods have sufficient infrastructure capacity to support increased development. Reduced parking requirements and shared off-street parking will also be pursued in

transit-oriented neighborhoods. Reduced and shared parking offer a number of potential important benefits including a reduction in commercial and housing development costs, which can lead to more affordable housing options, increased walkability, and increased development near transit.

As noted in action T-4, middle- and low-income households ride transit at significantly higher rates than higher income households. As a result, efforts to preserve and increase the supply of housing that is affordable to these households represents an opportunity to maximize emissions reductions and reduce housing and transportation costs. Therefore, the City will consider measures to ensure that lower-income households can locate and stay near transit, such as affordable housing incentives and requirements, anti-displacement and renter-protection policies.

Implementation Steps:

- Develop a zoning code that is consistent with the General Plan PlaceTypes, designates additional transit-oriented development and mixed-use development areas, and ensures sufficient capacity of backbone infrastructure to support increased development.
- Implement regulations to reduce parking requirements in transit-oriented neighborhoods and allow shared off-street parking for mixed-use projects.
- Adopt policies and strategies to preserve and increase the supply of affordable housing and prevent displacement.

Potential Cost Level: TBD

Equity Impacts:

- Creating transit-oriented development and mixed-use areas that prioritize low-income populations and help residents stay in place will allow them to benefit from the investments made in their area.

T-9: Integrate SB 743 planning with CAAP process

Use the Climate Action and Adaptation Plan process to identify local VMT reductions that, paired with reductions in other sectors, allows the City to achieve a GHG reduction target that is consistent with state guidance.

Implementation Lead: Development Services

Partners: Long Beach Transit, LA Metro, and other transit providers, bike share providers, schools

Timeline: Short (1-2 Years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- VMT reduction
- # of subsidized transit passes and other VMT mitigation measures provided

Co-benefits:

- Reduced traffic congestion and air pollution
- Reduced transportation cost burden for residents and employees
- Funding for transit passes and other amenities to support low-income populations

Description

SB 743 creates a process to change the way that transportation impacts are analyzed under the California Environmental Quality Act (CEQA). It requires that transportation impacts of development projects be assessed using a vehicle miles traveled (VMT) metric rather than Level of Service (LOS). State guidance also recommends a threshold of significance, such that if a project would result in per capita VMT that is in excess of 15% below the regional average, it should then mitigate that VMT. VMT mitigation, or reductions in VMT, could be funded directly by the project sponsor, or a central authority could collect an in-lieu fee to then fund the mitigation.

The Southern California Association of Governments (SCAG), Metro LA and California Air Resources Board (CARB)-funded research have explored various VMT mitigation strategies to determine which strategies most effectively deliver VMT mitigation. The research suggests that VMT reduction is highly context sensitive and depends on many local factors. Some of the more cost competitive VMT reduction strategies include subsidized transit passes, bike share facilities, and employer-based “fair commuting” programs that charge fees for single-occupancy vehicle commuting and give rebates for using more sustainable modes of transportation.

The City will establish local project thresholds of significance. The City will consider different threshold options that could include per capita VMT for the City as a whole or at more localized levels. The City will also evaluate what types of mitigation strategies may be most effective in the Long Beach context to reduce emissions and meet aligned City objectives.

Implementation Steps:

- Pass a resolution that adopts a project-level VMT threshold
- Recommend VMT mitigation strategies that would be most effective in the local context
- Collect in lieu fees and fund the implementation of VMT mitigation strategies
- Evaluate effectiveness of VMT mitigations and adjust as needed

Potential Cost Level: TBD

Equity Impacts:

- Since low-income households use alternative modes of transportation at higher rates than the general population, VMT mitigations that improve the service quality or reduce the cost burden of those modes would provide a positive equity impact
- Funding for low-income transit passes and other amenities can reduce transportation costs for low-income households

T-10: Identify and implement short-term measures to reduce emissions related to oil and gas extraction

Identify and implement measures intended to reduce oil and gas extraction emissions in the short term, such as technological interventions, leak detection, repair inspections or energy efficiency improvements, and explore ways to increase access to information regarding these emissions.

Implementation Lead: Energy Resources

Partners: Office of Sustainability, California Air Resources Board, South Coast Air Quality Management District

Timeline: Medium (3-5 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- # of measures identified to reduce oil and gas emissions
- # of measures implemented to reduce oil and gas emissions
- Additional disclosure of information related to emissions from oil and gas extraction

Co-benefits:

- Improved air quality

Description:

In 2015, 13.3 million barrels of crude oil and 5.1 million McF of natural gas were extracted within Long Beach. This resulted in an estimated 8.3 million MT CO_2e in lifecycle emissions, which is effectively 2.7 times greater than the city's 2015 production-based inventory. Approximately 91% of these emissions occur downstream and midstream as a result of refining, transport to consumers, and end users of fuel, while the remaining 9% is comprised of upstream emissions associated with extraction (5%) and natural gas lifecycle emissions (4%). It is estimated that 99% of the natural gas produce in Long Beach is combusted and 1% escapes as fugitive emissions through leakage. In the short-term there are a number of options that could be implemented to reduce GHG emissions from oil and gas production through emission control technologies and other mitigation actions. These focus primarily on minimizing process and fugitive emissions associated with upstream oil and natural gas production and are outlined in the Oil and Gas Memo, Appendix X to this CAAP.

The City will further explore the recommendations for short-term emissions reductions contained in the memo and evaluate implementation options. The recommendations include a range of infrastructure, technology, reporting, and regulatory efforts that the City will consider. This will include working to

ensure better accounting of upstream emissions from oil and gas production and sharing that information so that agencies, decisionmakers, and the general public have a better understanding of oil and gas production activities and can more effectively identify and implement measures to achieve short-term emissions reductions.

Implementation Steps:

- Evaluate short-term measures to reduce oil and gas extraction emissions, with emphasis on measures that would provide air quality and public health co-benefits to disadvantaged communities
- Identify a set of emission reduction measures that the City will seek to implement
- Partner with regulatory agencies to share information/report on oil and gas extraction emissions

Potential Cost Level: TBD

Equity Impacts:

- In general, disadvantaged and low-income communities are disproportionately impacted by fossil-fuel extraction, refining, and combustion. Reduction of GHG emissions is likely to have meaningful public health and quality of life co-benefits

BE-1: Provide access to renewably generated electricity

Explore and pursue various options to increase the community's access to renewable electricity that exceeds the State's Renewables Portfolio Standard in the near-term.

Implementation Lead: City Manager, Energy Resources

Partners: SoCal Edison, Clean Power Alliance

Timeline: Short (1-2 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % of residential customers that purchase 100% renewable electricity
- % of non-residential customers that purchase 100% renewable electricity

Co-benefits:

- Improved air quality
- Grid resilience, if energy storage is an added element

Description:

Electricity use contributed more than 20% of Long Beach's total community emissions in 2015. Reducing electricity-related emissions is a primary strategy for achievement of the State's GHG targets, and is implemented through California's Renewables Portfolio Strategy (RPS). Utility companies will be required to achieve 60% clean electricity portfolios in 2030 and 100% clean electricity in 2045 (Senate Bill 100). Implementing a local clean electricity strategy that exceeds the RPS is an important near-term GHG reduction opportunity, and can enhance reductions from other actions (T-6 Electric Vehicles and T-1 Port of Long Beach Clean Air Action Plan).

At the utility level, there are two options available to increase local use of clean electricity. Southern California Edison (SCE) offers its Green Rate program to residential and commercial customers that want to voluntarily purchase 50% or 100% clean electricity. Participants pay higher electricity rates per kilowatt hour with the revenue collected used to fund solar energy development programs in California. The City could also join Los Angeles and Ventura Counties and numerous other cities that participate in Clean Power Alliance (CPA). Clean Power Alliance purchases clean power for its members, while SCE delivers it. Similar to Green Rate, members have tiered rate options based on their desired share of renewable energy. In addition to utility-scale options, action BE-4 discusses building-scale solar energy development.

To demonstrate leadership, the City will opt into SCE's 100% clean electricity program for all municipal accounts. The City will then evaluate how it can best facilitate communitywide participation in clean

electricity use, including developing a feasibility study on the risks and benefits associated with joining CPA at its 100% clean electricity tier.

Implementation Steps:

- Complete feasibility study to understand risks and benefits associated with joining CPA
- Establish process with SCE to collect Green Rate participation information
- Purchase Green Rate 100% electricity for all municipal accounts

Potential Cost Level: TBD

Equity Impacts:

- Participation in clean electricity program options may include a price premium that would add further financial stress to lower-income households if participation was required. Alternatively, access to more electric utility providers may provide opportunities for electricity cost savings that would benefit the city's lower-income households

BE-2: Develop a home energy assessment program

Develop a program that encourages homeowners and property managers to complete energy assessments in order to identify energy and cost savings opportunities, and connect them with certified contractors and financing or rebate programs.

Implementation Lead: Sustainability Office, Development Services

Partners: Pacific Gateway Workforce Innovation Network

Timeline: Short (1-2 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- Number of housing units that received an energy audit
- Number of certified HERS raters in the community

Co-benefits:

- Reduced household costs associated with energy consumption
- Local job creation in energy audits/efficiency improvements

Description

Homes in Long Beach consume electricity and natural gas to power appliances and lights, produce hot water, and heat and cool rooms. Improving building energy efficiency can reduce utility costs for residents and minimize the size requirements for on-site renewable energy systems. Energy assessments can help homeowners understand which upgrades will provide the greatest energy savings and what payback period to expect.

There are several options available to help analyze building energy use and identify efficiency improvement opportunities. SCE provides an online survey to help residents analyze their utility bills, and suggests efficiency strategies that range from behavioral changes (e.g., turning off lights in unoccupied rooms) to technology improvements (e.g., installing high-efficiency appliances). Homeowners can also hire a trained contractor to perform an in-person home energy assessment and recommend cost-saving improvements and rebate information.

The Office of Sustainability is currently developing a Residential Direct Install Program for disadvantaged communities that will include home energy assessments from Home Energy Rating System (HERS) raters. The City will build upon this program, incorporating the lessons learned and leveraging previously developed community engagement structures, to implement a communitywide outreach campaign to increase voluntary home energy audits throughout the city. It will partner with the Pacific Gateway Workforce Innovation Network and other related parties to increase the number of certified HERS raters

in the community to expand local green job development opportunities. And, since approximately 60% of residents in Long Beach live in rental housing, the City will also work with landlords and property management companies to conduct energy assessments and prioritize improvements in rental housing units. Part of that effort will include information sharing on financial incentives and technical assistance to help make the case for improved energy efficiency in rental units. Robust anti-displacement strategies will be necessary to ensure that improvements are not a precursor to rent hikes and evictions.

Implementation Steps:

- Develop communitywide energy assessment outreach program based on the City's Residential Direct Install Program
- Implement a pilot program for rental property energy assessments and improvements, including case study development of project outcomes to share with landlords/property management companies
- Identify partnership opportunities with local workforce development organizations, including youth work organizations, to help expand direct install programs

Potential Cost Level: TBD

Equity Impacts:

- Household utility cost savings for low-income residents
- Potential job training and career opportunities for youth

BE - 3: Provide access to energy efficiency financing, rebates, and incentives for building owners

Identify funding sources to increase energy efficiency improvements in the community's existing building stock, and develop an outreach strategy to promote opportunities to all segments of the community.

Implementation Lead: Energy Resources, Economic Development, Sustainability Office

Partners: SCE, SoCalREN

Timeline: Short (1-2 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- Established energy resource center
- # of residents and businesses engaged by the City through the energy resource center
- Estimated energy savings (kWh, therms) from use of financial incentive programs

Co-benefits:

- Reduced household and business costs associated with energy consumption
- Local job creation in efficiency improvement installation

Description

Residents and businesses in Long Beach have access to a variety of rebates and other funding sources to help offset upfront costs for building energy efficiency improvements. SCE and Energy Upgrade California provide rebates for energy efficient appliances, insulation, smart thermostats, and more. The City's Energy Resources Department also provides residential customers with access to energy rebates when performing whole-house energy conservation projects. The Southern California Regional Energy Network (SoCalREN) provides technical assistance and financing options to single-family, multi-family, and commercial buildings. Property assessed clean energy (PACE) financing is also available for property owners to make permanent upgrades for building energy and water efficiency or install renewable energy systems, and repay improvement costs as an assessment on their property tax bill.

While the City will does not provide funding directly in will take an active role in promoting these rebate and assistance programs to all residents and businesses in Long Beach. The City will develop a building energy resource center that helps residents and businesses identify financing or rebate opportunities and estimates cost savings. The City will develop engagement programs to connect lower-income residents, the senior community, and non-native English households and businesses with technical

assistance and tailored information on energy efficiency programs. The goal of this targeted outreach is to provide additional assistance, where needed, to further remove barriers to participation.

Implementation Steps:

- Create a building energy resource center to provide residents and businesses with information on available rebates, financing options, and technical assistance programs
- Implement engagement campaign that increases awareness of financial and technical assistance options for all segments of the community
- Translate web and print materials into Spanish, Khmer, and Tagalog
- Establish data sharing processes with SoCalREN, SCE, and other agencies to track participation in energy efficiency rebate/finance programs, and estimate annual energy savings

Potential Cost Level: TBD

Equity Impacts:

- Household utility cost savings will benefit low-income residents, who on average spend a higher proportion of their income on energy
- Focused engagement with disadvantaged populations can address barriers in access to financial and technical assistance programs due to income, education, age, English proficiency, etc.

BE-4: Promote community solar and microgrids

Leverage partnerships and private developers to expand participation in community solar programs. Identify optimum locations and funding mechanisms for implementing microgrid pilot projects.

Implementation Lead: Sustainability Office, Disaster Preparedness and Emergency Communications

Partners: SCE, Port of Long Beach

Timeline: Medium (3-5 years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- # of identified local opportunity sites
- # of customers enrolled in SCE's community solar program
- kWh per year generated by community solar facilities located within Long Beach
- # of critical facilities connected to islandable microgrid power[1] (that can stand alone from the grid)

Co-benefits:

- Reduced household costs associated with energy consumption
- More equitable access to the economic benefits of solar energy
- Local job creation in installation of solar and microgrid infrastructure
- Backup power for critical facilities during utility grid outages

Description:

In addition to utility-scale clean electricity options described in action BE-1, the City can also facilitate development of local solar energy systems. Community solar refers to local solar systems shared by multiple community subscribers. Community solar programs provide access to the benefits of solar energy for renters, residents of multifamily properties, and other customers for whom rooftop solar installations are not an option.

The City will partner with SCE to increase participation in its community solar program that connects customers with solar developers on projects in their community. Customers contract directly with the developers for their desired solar energy subscription amount, and SCE applies a bill credit for their share of the project's monthly output. The City can work directly with solar developers to identify local opportunity sites and remove permitting barriers within the City's control. The City can also promote

[1] Solar PV systems that are grid-connected cannot power buildings during a grid outage. An islandable solar PV system can operate independently from the utility grid during outages, providing resilience during disruptions.

participation through information sharing and sign-up drives at City-sponsored events to collect contact information of interested residents on behalf of the solar developers.

Local solar development can also be used to increase community resilience during utility grid outages through development of microgrids. A microgrid is a localized energy grid powered by on-site energy sources that can disconnect from the traditional utility grid to operate autonomously. This means that during outages or other times of crisis, customers and critical facilities connected to the microgrid still receive power, increasing resilience and energy independence. The Port of Long Beach is implementing a microgrid pilot project that will serve as learning lab for the technology.

Based on the results of the Port microgrid project, the City will analyze opportunities for other microgrid systems in Long Beach. The analysis will consider the location of existing and planned renewable energy systems and critical facilities that require power during emergencies. The City will also explore development of community resilience hubs where solar and battery storage can be installed at community centers to ensure neighborhood residents have a location to access electricity during power outages or other emergencies.

Implementation Steps:

- Develop community solar informational materials, leveraging existing SCE materials where possible, to share at City-sponsored events
- Identify critical facilities that are candidates for a microgrid project and potential funding or financing sources
- Promote microgrid development to private agencies/organizations in Long Beach and work with applicants to minimize permitting barriers, where possible

Potential Cost Level: TBD

Equity Impacts:

BE-5: Perform municipal energy audits

Establish a municipal building/facility energy audit program, targets to decrease annual energy use, and track progress.

Implementation Lead: City Manager, Sustainability Office

Partners: Public Works

Timeline: Short (1-2 years)

Potential Performance Metrics:

- Number of municipal building/facility audits completed
- kWh electricity and BTU natural gas reduced

Co-benefits:

- Reduced City costs associated with energy consumption
- Demonstrate City leadership

Description

Municipal building/facility energy use is a very small subset of Long Beach's communitywide emissions; however, increasing energy efficiency at City facilities will save taxpayer dollars through reduced utility costs, likely improve comfort for City employees, and demonstrate City leadership.

California has set a target to double cumulative energy efficiency in electricity and natural gas end uses by 2030 (Senate Bill 350). Energy efficiency in buildings is a core focus of state efforts to achieve this goal. Local governments are not required to increase energy efficiency in municipal buildings but efforts to do so will help the state to achieve emissions reduction goals and achieve cost savings.

To increase the energy efficiency of its buildings the City will undertake a number of actions. This will include the establishment of a municipal building energy audit program and schedule to produce a complete evaluation of energy and cost saving opportunities across the City's building portfolio. Targets to decrease annual energy use and progress towards those targets will be tracked. Energy audits will be required every five years along operational improvements to optimize energy efficiency.

Implementation Steps:

- Order an energy audit of all City-owned or leased buildings and facilities.
- Establish a municipal energy benchmarking efficiency policy that includes efficiency targets.
- Incorporate audits into Facilities Conditions Assessments.
- Incorporate private sector building requirements into municipal projects.

Potential Cost Level: TBD

Equity Impacts:

- Rigorous local hire and disadvantaged community hire requirements would have positive economic opportunity impacts

W-1: Ensure Compliance with State Law Requirements for Multi-Family Residential and Commercial Property Recycling Programs

Adopt a mandatory commercial recycling ordinance that includes enforcement language to ensure on-site recycling collection is provided at multi-family and commercial properties and that the City is in compliance with State Law.

Implementation Lead: Public Works - Environmental Services Bureau

Partners: Franchise waste haulers, property management companies, Code Enforcement, Business License

Timeline: Short (1-2 Years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % of compliance at multi-family properties
- % of compliance at commercial properties

Environmental, Social and Health Co-benefits:

- Extended landfill operating life
- Beneficial reuse for recycled products

Description:

According to CalRecycle data, the commercial sector (including multi-family residences) generates nearly three-quarters of total solid waste in California, and much of that disposed waste is readily recyclable. Diverting waste from landfills through recycling can reduce downstream GHG emissions from organic materials (e.g., office paper, cardboard). It can also reduce upstream emissions from all recycled materials through decreasing demand for new raw materials and avoiding emissions associated with their extraction/harvesting, processing, manufacturing, and transportation.

In an effort to further reduce GHG emissions in the waste sector, California enacted Assembly Bill 341 to require on-site recycling services at commercial and multi-family (5 or more units) properties. The legislation requires jurisdictions to implement education, outreach, and monitoring for businesses to make them aware of the recycling requirements and their compliance options. To enhance compliance with the legislation, some cities have adopted mandatory commercial recycling ordinances.

Long Beach Refuse Division automatically provides recycling service for all commercial and multi-family accounts it services. Private haulers have the service available, and currently customers sign up for the service.. The City also provides information on the Long Beach Recycles website about AB 341 and tips for compliance. To ensure and more accurately monitor compliance, the City will develop a mandatory

commercial recycling ordinance that codifies requirements of AB 341 and establishes an enforcement mechanism with program to confirm non-compliance and fines for repeat offenders. The ordinance will outline the requirements of participation, the City's process to evaluate and monitor compliance, and enforcement approach including warnings and a fine structure for repeat offenders. The City and private haulers will continue to conduct commercial recycling outreach to explain the new ordinance, and provide technical assistance on establishing recycling programs for properties that are out of compliance.

Implementation Steps:

- Develop and adopt mandatory commercial and multi-family recycling ordinance
- Continue to conduct outreach to businesses and multi-family properties about state law and new City ordinance
- Develop technical assistance for properties found to be out of compliance
- Implement program to monitor compliance improvements

Potential Cost Level: TBD

Equity Impacts:

- Ensuring universal multi-family and commercial access to recycling services will allow residents in apartments or condos, as well as local businesses, to reduce the cost of their refuse collection

W-2: Develop a Residential Organic Waste Collection Program

Develop a curb-side collection program to divert organics for composting or processing at an anaerobic digestion facility and implement a pilot food waste collection program for single-family residential homes and multi-family properties to identify barriers and solutions to broad participation.

Implementation Lead: Public Works - Environmental Services Bureau

Partners: Franchise waste haulers, waste facilities, Office of Sustainability

Timeline: Medium (3-5 Years)

GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % of organic waste diverted from landfills and SERFF

Co-benefits:

- Beneficial reuse of waste products
- Local renewable energy development (e.g., biofuel)

Description:

Organic waste is an important emissions source for Long Beach, as in the rest of the state, where it decomposes in landfills to generate methane gas. Organic waste includes food scraps and compostable paper (like pizza boxes and used coffee filters) as well as yard waste trimmings. Based on CalRecycle data, approximately 45% of the residential waste stream in southern California consists of organic materials, including food waste (21%) and yard waste (11%). Diverting these items from landfills or incineration can help to reduce GHG emissions, and can prolong the operable life of a landfill. There are several organic waste management options, including composting to produce soil amendments for use in residential, commercial, and agricultural applications, or anaerobic digestion to produce low-carbon biofuel.

California has already defined a regulatory framework to reduce these emissions in support of statewide GHG targets. Importantly, Senate Bill (SB) 1383 defines specific organic waste targets to help reduce the impact of short-lived climate pollutants in the state, such as methane. SB 1383 set a target to achieve a 50% reduction in statewide organic waste disposal below 2014 levels by 2020, and a 75% reduction by 2025. It also requires a residential organics diversion program by 2022.

To help meet California's organic waste disposal goals, the City will assess waste franchise agreements for an organics recovery program. The City will work with stakeholders and franchise waste haulers and facilities to design a residential organic waste collection program for single-family homes, as well as a

food waste collection program for multi-family homes. The program will include educational activities for all users, and a pilot program for multi-family properties to identify challenges and solutions to implementation. The City will develop a waste characterization study to determine a community baseline level of organics disposal; future studies will be used to evaluate progress in organics diversion. The City will also continue to host free at-home composting workshops for residents.

Implementation Steps:

- Continue to monitor development of SB 1383 requirements.
- Adopt an enforcement mechanism into the municipal code to support state requirements.
- Establish and adopt city-wide goals for residential organic waste reduction.
- Identify partners and participants for a multi-family organic waste collection pilot program.

Potential Cost Level: TBD

Equity Impacts:

W-3: Ensure Compliance with State Law Requirements for Commercial and Multi-Family Residential Organic Waste Diversion

Adopt a mandatory commercial and multi-family organic waste collection ordinance to ensure on-site organics collection is provided at applicable properties pursuant to Assembly Bill 1826.

Implementation Lead: Public Works - Environmental Services Bureau

Partners: Franchise waste haulers, Environmental Services Bureau, property management companies

Timeline: Short (1-2 Years)

2030 GHG Reductions:
TBD MT CO_2e/yr

Potential Performance Metrics:

- % of compliance at commercial properties
- Tons of organic waste collected from commercial properties
- % of compliance at multi-family residential properties
- Tons of organic waste collected from multi-family properties

Co-benefits:

- Beneficial reuse of waste products
- Renewable energy development (e.g., biofuel)
- Compliance with state law

Description:

As described in Action W-2, diverting organic waste from landfills is an important strategy in achieving California's GHG target. Senate Bill 1383 defines specific targets for organic diversion, and outlines the state's implementation strategy. As part of this strategy, California enacted Assembly Bill (AB) 1826 to require businesses that exceed solid waste disposal thresholds to recycle their organic waste. As of January 1, 2019, businesses producing 4 cubic yards or more of solid waste per week are required to arrange for organic waste recycling services for food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper. AB 1826 also set green waste disposal thresholds for multi-family residential properties (5 or more units). As of April 1, 2016, multi-family properties that generate 8 or more cubic yards of green waste (e.g., landscaping, pruning, wood waste) must implement organic waste diversion strategies. AB 1826 does not currently require food waste recycling from multi-family properties; see Action W-6 for the City's residential food waste collection program.

The City of Long Beach provides information on the Long Beach Recycles website to help businesses and multi-family property managers comply with the requirements of AB 1826. To ensure compliance, the City will develop a mandatory commercial organic waste recycling ordinance that codifies requirements

of AB 1826 and establishes an enforcement mechanism with fines for repeat offenders. The ordinance will outline the requirements of participation, the City's auditing process to evaluate and monitor compliance, and enforcement approach including warnings and a fine structure for repeat offenders. The City will continue to conduct commercial and multi-family organic recycling outreach to explain the new ordinance, and provide technical assistance on establishing organic waste collection programs for properties that are out of compliance.

Implementation Steps:

- Develop and adopt mandatory commercial organic waste recycling ordinance
- Conduct outreach to businesses and multi-family properties to ensure they understand requirements of new ordinance
- Develop technical assistance for properties found to be out of compliance

Potential Cost Level: TBD

Equity Impacts:

- Ensuring universal multi-family and commercial access to recycling services will allow residents in apartments or condos, as well as local businesses, to reduce the cost of their refuse collection. Consideration should be made for low-income residents whose refuse rates could get more expensive due to these changes, and efforts should be made to minimize those impacts on low-income residents and disadvantaged communities.

W-4: Identify Organic Waste Management Options

Evaluate treatment options for organic waste collected in the community, including composting, mulching, and anaerobic digestion, and develop a plan to utilize available options.

Implementation Lead: Development Services

Partners: Public Works – Environmental Services Bureau**,** Regional waste processing facilities, other local governments, franchise waste haulers

Timeline: Long (6+ Years)

2030 GHG Reductions:
TBD $MTCO_2e$

Potential Performance Metrics:

- Identified sites for organic waste disposal in Long Beach
- Number of interested parties connected to information on potential organic waste facility sites in Long Beach
- Tons of organic waste sent to different facility types

Co-benefits:

- Beneficial reuse of waste products
- Local renewable energy development (e.g., biofuel)

Description

As described in Action W-2, the state established methane reduction targets for short-lived climate pollutants in several economic sectors, including specific targets to reduce statewide disposal of organic waste. The targets can be achieved by reducing instances of food waste and by diverting organic waste away from landfills to other types of treatment (e.g., composting, anaerobic digestion). Managing organic waste through anaerobic digestion can also help to offset fossil fuel use through production of biogas, which can be used to produce heat and/or electricity, support process heating at the digester facility, power alternative-fuel vehicles, or be injected into natural gas pipelines for use in home and businesses.

Actions W-x and W-x will result in increased organic waste collection and management in the future. The City will collaborate with other agencies, such as LA County, to identify potential locations for organic waste treatment facilities to handle future waste volumes and avoid the use of landfills due to capacity issues. The City will then work to share this information with and support potential parties willing to go through the permitting process. If a facility is sited the City will work to update waste hauler contracts and ensure that organic waste is hauled to locally sited facilities.

Currently, the City identifies organic waste collection requirements for its franchise waste haulers to ensure a high-quality level of service communitywide. These requirements include providing information to the City on the collection of organic waste. To support implementation monitoring, the City will continue to work with its franchise waste haulers to measure and report the amount of organic waste collected and track its treatment by method or facility.

Implementation Steps:

- Help identify potential locations for organic waste facilities and share information with interested parties
- Support interested parties to navigate the permitting process
- Continue to work with franchise waste haulers to measure and report the quantity and treatment of organic waste

Potential Cost Level: TBD

Equity Impacts:

- Organic waste management options should be considered in light of opportunities to create quality jobs. If exploring options for siting a facility, existing environmental health burdens of a community should be considered

Additional CAAP Mitigation Actions

As noted in the introduction to this chapter, the additional actions in the table below are included in the CAAP but not identified as priorities for meeting the 2030 GHG reduction target. However, these actions, and others not listed here, may warrant being implemented to achieve additional reductions by 2030 and/or to more quickly put the City on a path to meet the 2045 carbon neutrality goal.

Additional CAAP Mitigation Actions (non-priority)

Transportation Actions	Description
Increase express bus routes and dedicated bus lanes	Evaluate opportunities to expand express bus routes and/or provide dedicated bus lanes to reduce travel time and increase ridership.
Improve transit stop/station environments	Evaluate the network of transit stops/stations to determine improvements for rider comfort, safety, and convenience, including provision of shade/shelter, seating, on-time arrival information, lighting, etc.
Explore the feasibility of providing free or reduced priced transit passes	Identify ways to increase public transit use among populations with the greatest need and youth (18 and younger) in the community.
Expand the City's bike share program	Evaluate the breadth and location of the existing bike share program to ensure convenient participation opportunities for all segments of the community.
Transition Long Beach Transit Buses to electric	The state will require transit agencies purchase only EV buses beginning in 2029. Long Beach Transit could begin an early transition to electric ahead of this requirement.
Electrify all City-owned vehicles	Gradually transition the City-owned fleet to Electric Vehicles
Promote South Coast Air Quality Management District (SCAQMD) old vehicle scrapping program	Promote voluntary participation in SCAQMD's existing Old Vehicle Scrapping program to retire older, high-emitting vehicles in the community.
Affordability requirements in new development	Explore additional affordability requirements in new developments to ensure that high-propensity transit rider households can live near transit.
Conduct a longer-term re-evaluation of oil and gas extraction levels within the City	Explore long-term options to decrease and eventually phase out oil and gas extraction that takes place in Long Beach
Explore feasibility of congestion pricing	In the long-term evaluate the congestion pricing options and the potential impacts,

Building + Energy Actions	Description
Provide access to renewable natural gas (RNG)	Establish renewable natural gas (RNG) procurement targets for Long Beach Energy Resources to increase availability for community members, or establish a carbon offset program through funding RNG programs outside of Long Beach.
Drive decarbonization of natural gas end users	Develop building retrofit program to replace natural gas appliances with electric options that can be powered by clean electricity. Adopt stricter building energy efficiency requirements to guide new construction toward electric equipment options.
Develop a commercial energy benchmarking program	An existing building energy benchmarking ordinance would require buildings over a certain size threshold (e.g., 10,000 sq. ft. of space that is heated/cooled) to annually report their building energy use. The program can be further strengthened with additional requirements that benchmarked buildings also receive regular energy audits (e.g., every 5 years) to identify specific opportunities to save energy and money in the building, and/or perform building retro-commissioning.
Increase construction of zero-net emissions buildings	Mandate or incentivize new buildings to achieve net-zero emission standards, in which building energy emissions are reduced through on-site renewable energy systems or through offsets, such as community solar programs. This action would aim to deliver net-zero emission buildings in advance of the State's requirements (e.g., zero-net energy building requirements- 2020 for residential, 2030 for commercial).
Encourage Long Beach major energy users to participate in Southern California Edison's (SCE) time-of-use-rates	Increase awareness and utilization of real-time energy consumption data and pricing available through SCE time-of-use rates. Work with SCE and local business community groups to identify high-energy consumers and facilitate information sharing, through roundtable discussions, direct technical assistance, etc.
Provide water-efficiency rebates/incentives	Emissions from Long Beach's water use primarily occur outside of the City boundary from pumping and conveyance activities, and are not entirely reflected in the baseline GHG inventory. However, actions to reduce local water use would contribute to reductions in the City's consumption-based inventory, which does include these upstream emissions sources. Rebates and other water-saving incentive programs for residential and commercial customers can help facilitate installation of water-efficient appliances/equipment and water-wise landscaping practices.
Exceed state building code requirements	Adopt CalGreen Tier 1 voluntary measures as requirements for new residential and nonresidential construction and renovation projects in the city, to increase energy and water efficiency, reduce construction-based waste, and support active transportation options and electric vehicle use.
Require solar panels on new construction	Require solar panels on all new construction not already required by state law. As of 2020 new residential construction will require solar panels with

	limited exemptions. The City would explore options to require solar panels on exempted residential and non-residential construction.
Waste Actions	**Description**
Increase diversion of debris from construction and demolition	Revise the City's existing Construction & Demolition Management Plan to require a minimum diversion of 75% for wood/lumber debris.
Implement a complete ban on plastic bags and other single-use non-compostable to-go items	Adopt a ban ordinance that applies to all non-compostable single-use items in the community